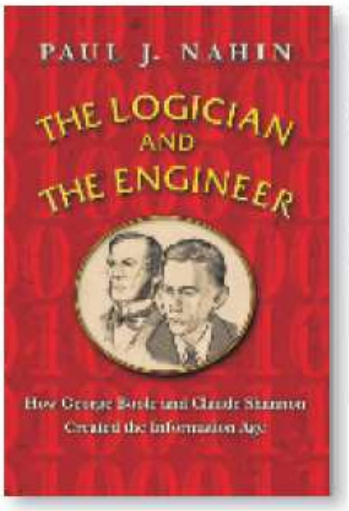
the Cosmos, The Logician and the Engineer



PRINCETON UNIVERSITY PRESS

THE LOGICIAN AND THE ENGINEER: HOW GEORGE BOOLE AND CLAUDE SHANNON CREATED THE INFORMATION AGE

BY PAUL J NAHIN, £16.95,
ISBN 978-0-691-15100-7

The Language Clarifier, Paul Nahin explains in his book 'The Logician and the Engineer: how George Boole and Claude Shannon created the Information Age', is a machine that turns convoluted language into simple sentences. He says the machine is fictional but I strongly suspect his publishers have a partially working model in their basement from which they generate simple but slightly misleading book titles.

Non-technical readers hoping to understand how modern computers and communications emerged from the ideas of the 19th century British mathematician Boole and the 20th century American electrical engineer Shannon, will struggle with this book. But those with a basic grounding in electrical theory and maths should find it interesting.

This is not a double biography. Rather it is a short but fairly detailed exploration of the genesis of Boolean logic and Shannon's information theory with some biographical elements thrown in. Between the many equations, circuit diagrams and logic puzzles, we learn how a cobbler's son who was largely self-educated came up with a new language of mathematical logic. A century later, the highly educated Shannon picked up the theory and showed how Boolean concepts such as 'if X or Y happens and not Z then Q results' could represent the working of switches and relays in electronic circuits.

The author is professor emeritus of electrical engineering at the University of New Hampshire, and it shows. Nahin's forte is in illustrating how theory is connected to practice with real examples of analysis. Subjects range from basic Boolean algebra, through conditional probability, all the way to Turing machines.

Nahin also goes beyond Boole and Shannon to the thermodynamics of computing and the twilight zone (his words) of quantum computers. But the 21st century 'information age' context is too thin on the ground to justify the title.

Not for everyone, but good background reading for anyone studying electronics or computer science.

Christine Evans-Pughe